

## Engineered Horizontal Remediation Wells Achieve Hydraulic Control of a Capped RCRA Hazardous Waste Landfill

### Introduction

A closed Resource Conservation and Recovery Act (RCRA) landfill containing residues from the manufacture of organic chemical products is capped with a synthetic geomembrane that cannot be penetrated. Postclosure monitoring activities revealed a developing hydraulic imbalance within the capped landfill that required corrective action.

### The Challenge Presented

Directional Technologies, Inc. (DTI) was contacted by the environmental engineering firm to review plans for and inspect the capped RCRA landfill then develop and design a hydraulic balancing plan using engineered horizontal remediation wells.

Technical challenges:

- Horizontal remediation wells had to be long – on the order of 700 feet – to accommodate the capped landfill’s footprint;
- Landfilled residues were chemically aggressive, limiting choices for horizontal well/screen material selection;
- Landfilled residue depth would create significant mechanical loads on the horizontal wells, further limiting material selection;
- Submersible pumps were to be installed in the horizontal wells, requiring 10-inch diameter riser well material. This presented a significant engineering design challenge due to the need for an achievable bend radius for the 700-foot long horizontal well.

### DTI Meets The Challenge

DTI designed two 700-foot long horizontal remediation wells of stainless steel employing a multi-diameter design (10-inch, 6-inch, and 4-inch). Stainless steel was selected to withstand the chemically aggressive environmental and significant mechanical forces. The multi-diameter configuration was used to accommodate the need for submersible pumps and horizontal well bend radius.

DTI employed the entry-exit (continuous) well installation method, which consists of advancing a horizontal pilot bore under the landfill cap, “daylighting” beyond the cap, reaming to the desired final bore diameter and pulling the riser and well screen into position. The two 700-foot long horizontal wells were successfully installed under the Capped RCRA Hazardous Landfill.

To bring this level of knowledge to your next horizontal remediation well project, please contact us at [drilling@directionaltech.com](mailto:drilling@directionaltech.com) or 203-294-9200.